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ABSTRACT OF THE DISCLOSURE

What are disclosed are methods for modifying the genome of vaccinia virus to produce vaccinia mutants, particularly by the introduction into the vaccinia genome of exogenous DNA; modified vaccinia prepared by such methods; certain DNA sequences and unmodified and genetically modified microorganisms involved as intermediates in such methods; and methods for infecting cells and host animals with such vaccinia mutants to provoke the amplification of exogenous DNA and proteins encoded by the exogenous DNA, including antigenic proteins, by said cells and host animals.